

REMARKS

Applicants note with appreciation the acknowledgements of the filed Information Disclosure Statement and of the claimed priority rights.

Claims 5-7 have been objected to under 37 CFR §1.75(c) as being in improper form of multiple-dependent claims.

These claims have been modified to obviate this basis for objection and, as amended, are now submitted to be patentable to Applicants.

Claims 1, 2 (and 3?), 4 and 8-12 have been rejected under 35 USC §1.02(b) as being anticipated by Takanaka et al. '417. This rejection is respectfully traversed with respect to these claims as amended herein.

These claims now variously recite the method and processor including
“determining a point of application of the ground reaction force;
calculating a moment of the ground reaction force based on the vertical
component of the ground reaction force and the point of application of the
ground reaction force;
calculating moments acting around the joints of the leg, using the moment
of the ground reaction force, the vertical components of forces acting on the
joints of the leg and a term of the acceleration of gravity and without using
the horizontal components of the forces acting on the joints of the leg and a
term of acceleration except the term of the acceleration of gravity”, or

“determining a point of application of the ground reaction force, using the attitude of the leg and the location of the center of gravity of the whole body;

calculating a moment of the ground reaction force based on the vertical component of the ground reaction force and the point of application of the ground reaction force;

calculating moments acting around the joints of the leg, using the moment of the ground reaction force, the vertical components of forces acting on the joints of the leg and a term of the acceleration of gravity and without using the horizontal components of the forces acting on the joints of the leg and a term of acceleration except the term of the acceleration of gravity”.

In addition, the dependent claims (including claims 5-7) are further limited over their associated predecessor allowable claims and are submitted to be patentable for that reason in addition to various recitations of

“the vertical component of the ground reaction force acting on the leg is assumed to be $M \cdot g$ and in a double-support mode the vertical component of the ground reaction force acting on each of the legs is assumed to be $(1/2) \cdot M \cdot g$ ”, or

“which leg or legs [are] in contact with the ground [is determined] based upon a value of vertical component of acceleration measured on the body.”

In addition, these dependent claims variously recite

“determining a point of application of the ground reaction force... based on the attitude of the leg and a location of the center of gravity of the body,” or

“wherein in the step of determining moments acting around the joints of the leg, at first the vertical component of a force acting on and a moment acting around the knee joint of the shin, are determined using the vertical component of the ground reaction force acting on the shin at the point of application of the ground reaction force and a term of the acceleration of gravity and without using the horizontal component of the ground reaction force and a term of acceleration except the term of the acceleration of gravity and then the vertical component of a force acting on and a moment acting around the hip joint of the thigh, are determined using the vertical component of a force acting on and a moment acting around the knee joint of the thigh and a term of the acceleration of gravity and without using the horizontal component of the horizontal component of the force acting on the

knee joint and a term of acceleration except the term of the acceleration of gravity”.

These aspects of the claimed invention are not disclosed or even suggested by the cited reference in which a point of application of a ground reaction force is not determined. Thus, a moment of ground reaction force is understood not to be calculated in Takanaka et al. ‘417 based on a point of ground reaction force, but instead is measured by a six-dimensional force and torque sensor (36).

In addition, the disclosure of Takanaka et al. ‘417 is understood not to calculate moments acting around the joints of a leg, based on a ground reaction force, but instead such moments are measured and controlled by motors at the joints. The distinguishing aspects of the claimed invention are thus not disclosed in Takanaka et al. ‘417 which therefore cannot anticipate these claims as amended herein. It is therefore respectfully submitted that all pending claims 1-12 are now patentably distinguishable over the cited art (including Razon ‘288 and Tagami ‘433, cited but not applied).

Reconsideration and allowance of all claims are solicited.

Respectfully submitted,
MASAKAZU KAWAI, ET AL.

Dated: _____

1/7/05

By: _____

Albert C. Smith

Albert C. Smith, Reg. No.: 20,355
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Tel.: (650) 335-7296
Fax.: (650) 938-5200